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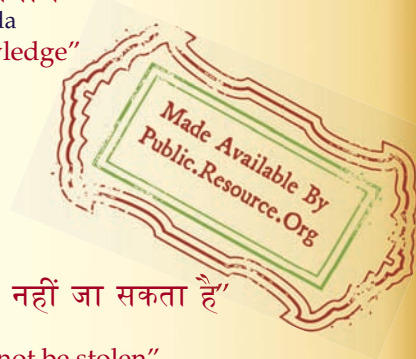
IS 13109-3 (1999): Electronic Equipment/Systems for Use in Coal and Metalliferous Mines, Part 3: Requirements for Battery Powered Amplifier Telephone Systems [LITD 8: Electronic Measuring Instruments, Systems and Accessories]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

कोयला और धातुमय खानों में प्रयुक्त विद्युत
उपस्कर/तंत्रों की विशिष्टि

भाग 3 बैटरी चालित एम्पलीफायर प्रणाली की अपेक्षाएँ

Indian Standard

SPECIFICATION FOR ELECTRONIC
EQUIPMENT/SYSTEMS FOR USE IN COAL AND
METALLIFEROUS MINES

PART 3 REQUIREMENTS FOR BATTERY POWERED AMPLIFIER TELEPHONE SYSTEMS

ICS 31.020;73.040;73.060

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FOREWORD

This Indian Standard (Part 3) was adopted by the Bureau of Indian Standards, after the draft finalized by the Mining Electronics Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

This standard (Part 3) is one of the parts of a series of Indian Standards on 'Specification for electronic equipment/systems for use in coal and metalliferous mines'. The other parts are as given below:

Part 1 Definitions, general requirements and tests

Part 2 Requirements for automatic telephone systems

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2:1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SPECIFICATION FOR ELECTRONIC EQUIPMENT/SYSTEMS FOR USE IN COAL AND METALLIFEROUS MINES

PART 3 REQUIREMENTS FOR BATTERY POWERED AMPLIFIER TELEPHONE SYSTEMS

1 SCOPE

This standard (Part 3) covers requirements for battery powered amplifier telephone systems for use in coal and metalliferous mines.

2 REFERENCES

IS 13109 (Part 1) : 1991 'Specification for electronic equipment/systems for use in coal and metalliferous mines: Part 1 Definition, general requirements and tests' is a necessary adjunct to this standard.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 13109 (Part 1) shall apply.

4 GENERAL REQUIREMENTS

4.1 Provisions of 5 of IS 13109 (Part 1) shall apply. For the purpose of protection class (IP) in 5.3 of IS 13109 (Part 1), this system shall be considered as a non-safety system.

4.2 Each battery powered amplifier telephone system shall consist of at least two telephones and each may comprise of:

- a) battery,
- b) suitable electronic circuitry,
- c) hand set,
- d) talk switch, and
- e) audio signalling device.

5 SAFETY REQUIREMENTS

5.1 Provisions of 6 of IS 13109 (Part 1) shall apply.

6 FUNCTIONAL REQUIREMENTS

6.1 The functional requirements shall be as follows:

- a) Received speech frequency response Within 0 and -8.7 dB over a frequency range of 300 Hz to 3.4 KHz or better, measured with respect to 800 Hz
- b) Range Minimum 2 km

c) Maximum allowable distortion 5 percent

- d) Cross talk
 - a) Between 2 circuits — 58 dB
 - b) Between go and return direction of a circuit — 43 dB

e) Power supply Provisions of 5.7 of IS 13109 (Part 1) shall apply

6.2 Any additional requirements may also be specified as agreed between the purchaser and the manufacturer.

7 MARKING

7.1 Provisions of 8 of IS 13109 (Part 1) shall apply.

7.2 The type of cable to be used with the system shall also be marked. The cable distributed parameters shall be provided by the manufacturer.

8 ENVIRONMENTAL REQUIREMENTS

8.1 Provisions of 9 of IS 13109 (Part 1) shall apply.

8.2 Endurance Test

8.2.1 The sample shall be energized by a test voice signal (that is a recorded speech) of two minutes duration and then disabled. 1 000 such operations shall be carried out and the duration between two successive operations shall be 10 seconds. Recovery period shall be one hour.

8.2.2 All mating parts, which are required to be engaged/disengaged during normal operation, shall be engaged/disengaged 500 times under dennergized condition at the rate of 6 to 10 operations per minute. There shall not be any mechanical damage after this test.

9 GENERAL CONDITIONS FOR MEASUREMENT

Provisions of 11 of IS 13109 (Part 1) shall apply.

10 TESTS

10.1 Classification of Tests

10.1.1 Type Tests

10.1.1.1 Provisions of **10.1.1** of IS 13109 (Part 1) shall apply.

10.1.1.2 After each type test, the sample shall be subjected to functional requirements as specified in **6** of this part.

10.1.2 Acceptance Tests

10.1.2.1 Provisions of **10.1.3** of IS 13109 (Part 1) shall apply.

10.1.2.2 The following tests shall constitute the acceptance tests:

- a) Visual examination,
- b) Received speech frequency response,
- c) Range,

d) Maximum allowable distortion,

e) Cross talk,

f) Power supply check, and

g) Protection against ingress of solid foreign bodies and liquid particles.

10.1.2.3 A suitable sampling plan may be used, as agreed between the manufacturer and the purchaser.

10.1.3 Routine Tests

The following shall constitute routine tests:

- a) Visual examination,
- b) Received speech frequency response,
- c) Range,
- d) Maximum allowable distortion,
- e) Cross talk, and
- f) Power supply check.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Test Affected

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